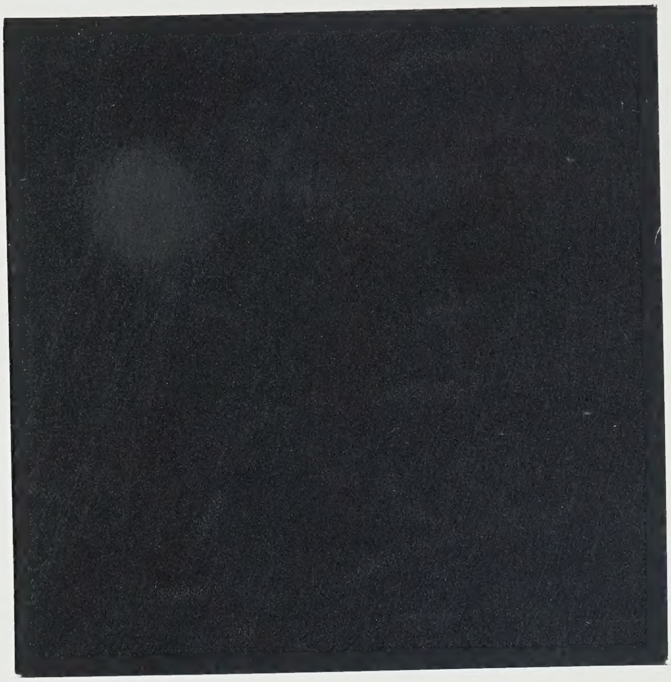
SMALL BUSINESS ADVOCACY REPORT NO. 14

WORKER'S COMPENSATION EXPERIENCE RATING: A CLAIM DEDUCTIBLE CONCEPT

October, 1986

MINISTRY OF INDUSTRY, TRADE AND TECHNOLOGY
ONTARIO



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Small Business Branch
Small Business, Service Industries
and Capital Projects Division
Ministry of Industry, Trade and
Technology

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CONTENTS

SECTION 1 - INTRODUCTION

The purpose of this project is to consider the feasibility of introducing the concept of a claims deductible into the experience rating of claims costs under workers' compensation in Ontario. The focus is primarily on its impact for smaller employers.

A brief explanation of both the rategroup account and the assessment rate process is provided as a fundamental background. The New Experimental Experience Rating Formula (NEER) is described and then used in greater depth to develop the deductible approach. The project then moves forward and identifies specific approaches to designing the deductible approach.

The conclusion of this project is that the deductible concept is feasible - perhaps not in precisely the manner that would be envisioned by the layman however. From a practical viewpoint it makes sense to use the NEER formula structure to the greatest extent possible. It does appear possible to make a few alterations to the NEER formula and effectively install a claims deductible approach which could be made highly responsive for small employers.

Many questions will need to be answered and considerable testing done on the data of a few actual rategroups to determine if desirable results would be achieved.

SECTION 2 - CURRENT ASSESSMENT POLICY OF THE WORKERS' COMPENSATION BOARD

2.1 Introduction

In order to appreciate the concept of experience rating it is necessary to understand the approach and policy towards employer assessments used in Ontario by the Workers' Compensation Board.

Currently, the Workers' Compensation Board establishes over 100 rategroups which classify employers by the end product they produce. For each rategroup a specific assessment rate is established annually. This rate is expressed as a percentage of assessable earnings, and the same rate is paid by all employers in the rategroup.

A financial account is maintained for each rategroup. Assets and liabilities are assigned to each rategroup and an account of revenue and costs is produced.

2.2 Rategroup Account

The financial account maintained for each rategroup is similar to the financial statements for any corporation, or more specifically a life insurance company. There are assets and liabilities which form the balance sheet and thus reveal either a net surplus or a deficit. There are annual revenue and expenses which produce an annual profit or loss for the rategroup and thus serve to increase or reduce the surplus or deficit in the rategroup account.

The assets are the new accumulation of:

(i) assessment premiums and investment income, reduced by

(ii) annual benefit payments and expenses.

The liabilities consist of:

(i) A Future Award Liability to cover:

- future awards on existing temporary compensation and medical aid claimants, and
- a reserve for existing claims which may become permanent disability and dependent pensions;

(ii) A Pension Annuity Liability to cover approved permanent disability and dependent pensions.

Both liabilities are now valued on an interest rate of 3% which makes provision for benefit increases linked to changes in the cost of living.

Most rategroups have an excess of liabilities over assets. This deficit is called an unfunded liability. To a large extent it is dependent upon the assumptions used to set the liabilities. The four major parameters are the number of lost time injuries, the expected average duration of each, the average daily benefit payable and the interest rate used to discount the stream of expected future payments.

2.3 Assessment Rates

The Workers' Compensation Board uses a full funding philosophy. The Board's objective is for the annual assessment generated each year to match the sum of current and future benefit payments plus administrative costs on new accidents in the year. The experience generated by a rategroup is used directly to produce the assessment rate paid by all employers in that rategroup.

The rategroup account is consequently the most important fundamental record in the development of an employer's assessment rate. Given the funding policy, each rategroup is expected to produce a zero surplus/deficit. If this balance was maintained each year from inception of a rategroup, then assets would match liabilities exactly at all times. In practice, a surplus or deficit will emerge each year.

The existence of an accumulated surplus or deficit means that assessment revenue for the following year will contain some reflection of the surplus or deficit. Thus, if there is an accumulated deficit, the assessment revenue for the following year will need to be sufficient to meet expected costs from new claims plus make some contribution towards liquidation of the deficit.

In Appendix C to this report, a sample rategroup account, assessment rate calculation and a list of all rategroups is provided.

2.4 Experience Rating

The assessment procedure is a form of experience rating. Industries are experience rated through the creation of the 108 rategroups. A rategroup is prospectively experience rated as a whole as the Board expects it to be self-supporting.

The current process however ignores the accident/safety record of the individual member firms within a rategroup. Under current conditions, employers large or small, with good safety records, receive very little financial incentive to continue investing effort and money towards creating a safer workplace. They all pay the same assessment rate. Thus, employers in the same industry with excellent safety records subsidize implicitly those with poorer records.

The experience rating formulas now in use all focus on rating the experience of individual firms within the rategroup. They do not disturb or alter the assessment rate procedure at the rategroup level.

The W.C.B. Voluntary Plan of experience rating has been in place for many rategroups since the 1950's. However it is felt to be less responsive than is desirable and it makes an invalid comparison of claims costs to assessments when determining a refund or surcharge.

The Construction Industry CAD-7 formula introduced in 1983 has achieved some success and has undergone some minor modifications. Originally it was felt to focus too strongly on accident frequency which is partially the reason for the development of NEER.

The New Experimental Experience Rating Formula (NEER) focuses on total accident costs including the use of reserves. It introduces the concept of credibility to give more weight to the actual experience of larger firms and less weight to smaller firms. It adjusts assessment rates of each firm and also provides refunds and surcharges at year end. This formula now is in use in six industries -- forestry, mining, petroleum, hospitals, trucking and rubber.

SECTION 3 - THE NEW EXPERIMENTAL EXPERIENCE RATING FORMULA (NEER)

This section provides a brief explanation of the NEER formula and addresses the implications it has for small employers.

3.1 NEER

In response to employers' concerns over high workers' compensation assessments, the NEER plan was developed to encourage employers to improve safety and rehabilitation measures, and thereby reduce the number of accidents, their severity and associated costs. Assessments collected within an industry rategroup will be redistributed under NEER, charging less to firms with good records and more to firms with poor accident records.

The basic structure of the plan is as follows:

Manual Assessment - In the past, all firms in an industry rategroup paid the same assessment rate called the Manual Assessment. In future, firms within the industry will not pay the same assessment rate.

Prospective Assessment - Under the NEER plan, each firm will pay a rate for the year based partly on their own firm's recent experience and partly on the average level for the rategroup. This is referred to as the Prospective Assessment.

Ultimate Cost - At the end of the year all costs associated with new claims that occurred during the year are added together and called the Ultimate Costs. They will include:

- benefits paid to date

- future costs or reserves;
- capitalized value of pensions awarded;
- charge for Board services (indirect costs).

Retrospective Assessment - A loss record for all claims registered against a firm for the year will be developed. A number of technical steps will be completed to turn the Ultimate Costs into the final assessment known as the Retrospective Assessment. The technical steps are used to retain a large element of insurance protection. They limit the impact of severe claims and moderate the effect of year-to-year fluctuations in experience.

Refund of Surcharge - When the Retrospective Assessment is compared to the Prospective Assessment, which has already been paid for the year, the difference between these two will be a Refund or Surcharge. Because it is difficult to estimate the total cost of a claim at the end of the first year of an accident, a second and third annual calculation and adjustment will be made as the true costs emerge. This will lead to additional refunds or surcharges on the same claim. The initial Retrospective Assessment can reward accident prevention while the subsequent refinements can reward rehabilitation efforts.

The New Experimental Experience Rating Formula presents new opportunities for industry to gain from an effective approach to the prevention of occupational injuries and illnesses and their associated costs.

3.2 Implications for Small Employers

The NEER retrospective rating process provides protection to the smaller employer by:

(i) assigning credibility of only 20.0% of the actual losses of the firm;

(ii) limiting the size of the ultimate claims cost of an individual claim to 5.0 times maximum annual insurable earnings;

(iii) assigning a maximum surcharge of 1.5 times annual assessments. The total assessments a firm pays in respect of any accident year is limited to $2\frac{1}{2}$ times its annual assessment. Very few firms ever reach this limit;

(iv) splitting a claim into primary and excess portions. This protects a firm from the effects of one large claim. At the same time, this penalizes firms with frequent small claims. The Workers' Compensation Board hopes this will promote safety programs at work;

(v) averaging the results over 3 years to smooth out fluctuations when setting the prospective assessment rate.

On the other hand, refunds for small employers will be quite modest when good experience occurs. Also the formula as it stands is certainly too complex for most small employers to understand. It is possible that in the interest of actuarial equity the formula may have been made too unresponsive for small employers.

The specific steps in the formula are shown in detail in the worksheets being prepared by the Workers' Compensation Board. A copy of these draft worksheets has been enclosed with this report.

It is within the technical insurance steps of the formula that changes will be recommended to introduce the deductible concept in Section 4. Most of the basic structure of the NEER formula can remain unchanged to accommodate the deductible idea.

SECTION 4 - EXPERIENCE RATING - THE DEDUCTIBLE CONCEPT

4.1 Objectives

The deductible concept applied to each claim would require the employer to be fully responsible for the cost of a claim up to the deductible limit ($500 for example). Insurance principles would apply to the cost of a claim in excess of the deductible limit.

The deductible concept can be an alternative to other forms of experience rating or it can complement or be added to a traditional approach to experience rating.

In the context of this study the objective of the deductible is to:

- provide significant financial rewards to small firms with good claims experience while preserving a very strong element of insurance protection;
- provide a more easily understood approach to experience rating as compared to sophisticated actuarial techniques which might be included in other experience rating formulas;
- address the concerns about the appropriateness of experience rating for small firms expressed in Professor Weiler's second report.
- provide an employer the incentive to cut accidents and to realize a reduction in assessments to the extent he can influence it by his own choice and behaviour.

While the focus of this project is the smaller firms, typically under 100 employees, the mandate did not suggest that the deductible concept should apply only to small firms.

4.2 Weiler on Deductibles

At this point it is appropriate to review the context in which Weiler suggested a deductible for small firms.

In his opinion, full experience rating is only appropriate to a small number of firms with a sufficiently large payroll. Since experience rating is desirable and the vast majority of the firms in Ontario are smaller, then a modified experience rating formula should be found such that a greater number of firms be subject to experience rating. As experience rating is based on the statistical credibility of the claims experience, Weiler suggested that experience rating could be extended to smaller groups if that method uses 3 years' experience rather than the usual one year. He recommended a combination of self-insurance and collective insurance for medium size firms. With these modifications an experience rating system could be designed to cover firms representing fifty percent of the compensation costs in Ontario.

In Weiler's view experience rating is spurious for the smaller firms. Group coverage must be maintained but somehow modified to accommodate safety promotion. He therefore suggested that a "deductible" would accomplish this objective.

Weiler proposed that the deductible be administered as follows:

> "The Board would charge back to the firm an initial dollar portion of the compensation which it pays for each claim involving that firm's employees: perhaps $500 a claim with a $2,000 a year limit."

> "Their virtue is that they would generate safety consciousness on the part of even the smallest firms, by focusing on the frequency rather than the severity of workplace injuries, the feature most within the employer's control."

Of course, it is expected that the normal assessment rate would be reduced for all firms in the program.

The problem with experience rating for small firms is that people expect significant refunds when there are no claims but argue the surcharge should be minimal when claims do occur. It is true that one expects many more small firms to get refunds than surcharges simply based on claims frequency statistics. However, the amount of money declared as refunds must equal the surcharges to poor performers. Thus the average refund must be smaller than the average surcharge.

One suspects that if using the deductible concept resulted in only a 10% reduction in basic assessments to small firms there would be considerable skepticism. However, it is quite conceivable that this would be a statistically and actuarially correct result.

4.3 Legal and Administrative Considerations

The deductible under an employer's general insurance program (fire, damage, casualty, etc.) is designed to permit self-insurance of part of the overall risk. The insurance company pays a claim amount which is usually equal to assessed liability less the deductible. It is also assumed that if no claim is submitted, the insurance company is absolved from any future liability. The employer benefits by paying lower premiums which result from:

(i) self-insuring some of the risk:

(ii) lower administration costs as smaller nuisance claims are not submitted;

(iii) declining to submit a claim slightly larger than the deductible, for fear of affecting his future premium rates.

This approach creates some problems in the context of workers' compensation:

(i) Section 121(1) of the Workers' Compensation Act requires that the Workers' Compensation Board be notified of all relevant details concerning an accident within 3 days of its occurrence.

(ii) The Act provides for unlimited recurrence of a disability. Thus there is the potential for significant future payments even if the initial claim is insignificant. Thus payment of small claims directly by the employer would not absolve the W.C.B. of potential future liability.

(iii) Any payment made directly by the employer for a disability would be taxable to the employee unless it was filed and accepted by the W.C.B. as a valid claim. This issue was clarified in 1985 with Revenue Canada.

We believe that the Ontario Legislature and the Workers' Compensation Board would be reluctant to alter the taxability issue and claim filing requirements of the Workers' Compensation Act because:

(a) The tax free status of benefit payments when all employer assessments are deductible for corporate income tax, effectively creates some indirect funding of Workers' Compensation by the federal government.

(b) The lack of information of past claims could lead to difficulties in assessing future claims especially those based on old injuries.

As an alternative to the above administrative approach, the Workers' Compensation Board could still pay all claims with the Board recovering the deductible portion directly from the employers. Accordingly, it does not appear to us that the deductible concept creates any administrative cost saving. In fact, the process of recovering the deductible portion of each claim from employers could lead to greater administrative costs.

In addition if all claims are filed with the W.C.B. then the proper reserves can be established for potential future liabilities.

4.4 Practical Considerations -
<u>W.C.B. New Experimental Experience Rating Formula</u>

There are many practical considerations involved in the design of a deductible concept for experience rating.

Let us try a simple definition of the deductible approach.

> "All small firms in the rategroup would pay the same reduced assessment rate and in addition would pay the first (say $500) of cost on each claim during the year."

This one sentence raises many issues:

- While a small firm may be considered one having less than 100 employees, the deductible concept can be applied to firms of all sizes.

- Notice that the rategroup concept is retained. The W.C.B. would not countenance a regrouping of firms into small versus large across all rategroups. In fact, it is neither desirable nor necessary to do this to achieve our objectives. However, so far, experience rating has been introduced on a rategroup by rategroup basis and with the request of employers in that rategroup.

- Payment of a reduced assessment rate gives all firms an immediate refund in effect. It says there is 100% experience rating on the first $500 of each claim and 0% experience rating on all other costs. This may be appropriate for the very smallest firms but for firms of over 75 employees, it may be desirable to include some experience rating on costs in excess of $500 per claim.

- It may be preferable to have each firm pay the full normal assessment each year and receive a refund when there are little or no claims? This emphasizes that no claims each year produces a refund. A reduced assessment could be taken for granted and then the first $500 of a claim viewed as a surcharge.

- The reduction in the normal assessment rate depends upon the level of the deductible.

- Claims costs could include only cash benefit payments or could also include reserves and administrative costs.

- Costs on all claims - past and current - could be included, or just costs on new accidents in the current year. A total annual limit should be imposed?

- Clearly the level of deductible is an issue. There is no magic in the $500 figure. Should it be the same for a firm with 3 employees as 15 employees? Perhaps a firm should be able to select its own deductible.

From a practical viewpoint, the work already done by the W.C.B. Actuarial Services department to create the New Experimental Experience Rating (NEER) formula will provide answers to many of these issues and questions.

We recommend that:

(i) The deductible concept, if adopted, be applied to firms of all sizes. The concept is equally applicable to large firms. The degree of experience rating applied to costs above the deductible should vary significantly between small and large firms.

(ii) Any distinction between small and large firms should be based on firm assessments since this implicitly recognizes the varying degree of risk between rategroups.

(iii) Claims costs should include benefit payments to date, plus reserve for future payments, plus administrative service costs. A strenuous effort is being made by the W.C.B. and employer associations to educate employers about the total cost of an accident.

(iv) The NEER formula be modified to introduce the deductible as opposed to the creation of a completely new formula.

The most important aspect of an experience rating system is the construction of a claims file system. This has been done for NEER and contains all the information necessary for the deductible idea. Hence it should be used.

NEER contains the mechanism to split individual claims costs into amounts above and below a deductible limit. In NEER these are called primary and excess amounts.

NEER contains the credibility concept giving varying percentages of weight to different elements of experience. By setting the credibility levels to 100% or 0% firms can be either fully accountable or receive no experience rating on the desired portion of claims costs.

NEER provides for both prospective rate setting as well as retrospective refunds and surcharges. Hence whichever approach is desired with the deductible can be accommodated.

NEER applies to all firms within a rategroup and thus would facilitate the blending of the deductible concept with a varying element of further experience rating for larger firms.

In the next section some specific modifications to NEER are proposed.

4.5 NEER Modifications to Include Deductibles

Essentially NEER can be modified so that the primary portion of each claim becomes the deductible and 100% credibility is assigned to this primary/deductible portion of each claim. Coincident with this change, the charge made for expected or non-credible claims must be adjusted to recognize that a portion of the total assessment has been charged out for primary/deductible claims and given 100% credibility.

Appendix A provides a specific example of this adjustment to the formula. However, further comment on these two changes is required:

(i) Primary/Deductible - Currently, the primary/excess split on each claim varies by size of claim irrespective of the firm size. This could be changed so that the primary/excess split varied by firm size and thus the same limit applied to all claims within a firm. The primary/excess split could be set at a very low level such as $400-500 per claim for firms having annual assessments of under $15,000 for example, and could grade up to $13,000-15,000 per claim for firms having annual assessments of over $400,000 for example.

(ii) 100% Credibility/Fully Accountable - Currently the primary loss is given 100% credibility in the development of the Basic Loss and Firm Loss record. The excess claims receive credibility ranging from 20% for small firms to 85% for large firms. We recommend that excess claims continue to be assigned some degree of credibility, although it might have to be less than the current minimum 20%.

The change in primary loss limits would automatically change the item called Expected Excess Loss which is critical to getting the reduction in assessment when no claims are incurred.

In order to have 100% credibility on the primary losses flow through to the final retrospective assessment for the year, it is necessary to set Firm Loss equal to Retrospective Loss. Thus effectively the second application of credibility, which exists in NEER, is eliminated. It does simplify the formula. However, until extensive testing is done on a rategroup it is not possible to know whether this will make the formula too responsive or create a large net imbalance of refunds and surcharges between the firms.

Although this appears to be the most direct and practical approach to introducing the deductible concept, there are other possibilities;

(a) In the suggested approach above we recommended the application of credibility to excess claims losses. Of course, it would be possible to give zero credibility. Since this is not appropriate for large firms a limit could be set in terms of annual assessments, such as $15,000, below which zero credibility is given to excess claims. This would simplify the formula further. However it makes the formula essentially a frequency formula which, to date, has not been favoured by employers.

(b) If the overriding objective was simply to make experience rating more responsive for small firms, then the minimum credibility of 20% could be moved up to say 30-35% with no other changes to NEER.

(c) It would be possible to set the prospective assessment rate equal to the Expected Excess Loss portion of the normal prospective assessment and then bill each firm for the primary losses as they occur. This would give each firm a clearer idea of the deductible concept. We suspect the W.C.B. may have concerns about the collectability of primary losses. Also remember that the cost of a claim is more than simply the cash benefit payment made currently. Thus the W.C.B. might have to wait until year-end to do the proper primary loss calculation.

All these alternatives make use of the NEER structure. Given the time, effort and extensive interest expressed in NEER by employer groups, it does not seem practical to recommend an alternative which makes no use of the work already done.

4.6 <u>Summary</u>

In summary, it is both possible and practical to introduce the deductible concept. However, many questions remain unanswered.

First, extensive refinement of our ideas must be done. We have done some preliminary testing on one typical rategroup to identify the magnitude of potential rate reductions and refunds or surcharges. Our results are shown in Appendices A & B.

Second, there is the serious questions of how responsive should experience rating be for small employers. This requires input from associations representing small employers.

Finally, there needs to be a clear call from employers that the deductible concept is desired. As long as experience rating is not mandatory, the W.C.B. has operated on the principle that requests for experience rating should come from employers.

APPENDIX A

DEDUCTIBLE CONCEPT IN NEER

Formula terminology and steps are the same as used in NEER.

1. Develop Limited Loss for each claim in the same manner as in NEER.

2. Redefine the Primary Loss portion of each claim by a formula such that:

   Primary Loss = Limited Loss but not greater than Primary Loss Limit where the Primary Loss Limit is the same for all claims in a firm and it grades from the $500 range for small firms to about $13,000 for the largest firms.

   The formula to set the specific limit per firm uses the firm manual assessment to define its size.

   The precise formula and minimum and maximum limits require testing.

3. The excess Loss is the Limited Loss minus the Primary Loss. Clearly this split will be different than under NEER.

4. From this point all claims are added together and Losses are defined at the firm level.

Basic Loss	= Primary Loss + Z x Actual Excess Loss
	+ (1-Z) x Expected Excess Loss
where Z	= self insurance factors
(1-Z)	= collective insurance factor.

5. The Firm Loss is defined as in NEER.

6. The Retrospective Loss is redefined as equal to Firm Loss.

7. The Retrospective Assessment, Refund and Surcharge follow as in NEER.

8. The Prospective Assessment still is defined as in NEER or could become the 3 year average Firm Loss divided by the 3 year average Manual Assessment.

APPENDIX B

TESTING OF THE DEDUCTIBLE CONCEPT

Three variations of the concept have been tested and developed somewhat further with examples. They are as follows:

1. A $500 deductible has been set for all claims in all firms. No experience rating is applied to the remainder of claims.

2. The $500 deductible is used and some experience rating is applied to claim costs in excess of $500.

3. A claim deductible which varies by size of firm is considered.

In Appendix A, the generic definition of this claim deductible concept made provision for a deductible varying by firm size and also for some sharing or experience rating of costs in excess of the deductible. In order to examine the impact of these features more closely each is isolated within the formula.

For the testing of the concept Rategroup 405 - Chemicals was selected. It has approximately 550 firms and 42,000 employees. It has a typical distribution of larger and smaller employers -- about 480 firms have less than 150 employees. For 1985 assessments totalled $10.3 million in this rategroup at an assessment rate of $1.11 per $100 of assessable payroll.

1. Claim Deductible at $500 for All Firms

If the first $500 of total ultimate cost on each claim is segregated from the remainder and totalled, it represents 9% of the total cost of claims for the rategroup.

Thus if no experience rating is applied to the remaining 91% of the assessments this suggests that for a firm having no claims a refund of 9% of assessments would be paid.

From another viewpoint, each firm pays 91% of current assessment levels plus the first $500 of each claim.

This split of 91%-9% with a $500 deductible highlights the dilemma:

- a 9% maximum refund for having no claims is not very significant.

- smaller firms generating say, $7,000 of annual assessments, representing about 28 employees in this rategroup probably would get a surcharge if they had 2 claims in a year and would get a maximum refund of $630 with no claims.

- if the deductible was increased above $500 then the 91%-9% will shift -- essentially if the objective was to produce a 15% refund for no claims (an 85%-15% split) there is a claim deductible which will satisfy this.

- when the deductible is low this formula simply rewards and penalizes frequency of accidents.

- larger firms can certainly accept more risk in return for larger potential refunds.

This is really the purest form of a deductible concept:

Retrospective Assessment = Primary Losses + Expected Excess Loss

where Primary Losses = sum of first \$500 of claims costs on each claim

Expected Excess Loss = 91% of the Manual Assessment

This variation is simple but has severe limitations.

2. Claim Deductible of \$500 Plus Experience Rating of Costs in Excess of Deductible

This variation adds some impact of the severity of a claim by charging a portion of the claim in excess of the deductible. It is done by the use of a self insurance factor as shown generically in Appendix A.

Assume in this rategroup the self insurance factor was set at 6% for firms having \$7,000 of assessments; assume this particular firm had 1 claim costing \$15,000 in a year. A \$500 deductible dictates Expected Excess Losses of 91%.

The retrospective assessment would be:

Retrospective Assessment = Primary Loss + 6% x Actual Excess Loss + 94% Expected Excess Loss

= 500 + .06 x (15,000-500) + .94 x .91 x 7,000

= \$7,358

Thus a surcharge of \$358. However if the same firm had no claims:

$$\text{Retrospective Assessment} = \text{nil} + .06 \times \text{nil} + .94 \times .91 \times 7{,}000$$
$$= 5{,}987$$

Thus a refund of $1,013. Now the refund has become somewhat more meaningful. Of course, the potential for a surcharge also increases although the self insurance factor moderates this considerably. Certainly there is a need to put an arbitrary ceiling on the size of surcharges.

This method increases the maximum refund to about 14% for any firm having no claims. This may be a sufficiently attractive refund for smaller firms but does not provide adequate risk sharing for somewhat larger firms.

3. Claim Deductible Varying by Firm Size Plus Experience Rating of Excess Claims

The second variation above was expanded by increasing the claim deductible and the self insurance on excess claims as the firm size increases.

The following empirically determined arrangement was tested for firms up to 100 employees:

# of Employees	Annual Assessment	Claim Deductible	Expected Excess Claims	Self Insurance on Excess
≤20	≤$ 5,000	$ 500	91%	5%
21- 35	5,001- 8,500	1,000	86%	6%
36- 50	8,501-12,000	2,000	80%	7%
51-100	12,001-25,000	4,000	72%	8%
etc.	etc.	etc.		etc.

Consider a firm of 45 employees with annual assessments of $11,000, having 2 claims -- one for $700 the other claim for $18,000. The retrospective assessment is:

Retrospective Assessment = Primary Loss + 7% Actual Excess Loss + 93% Expected Excess Loss

= (700 + 2000) + (.07 x 16,000) + (.93 x .80 x 11,000)

= $12,004

If the same firm had no claims the retrospective assessment would be:

.93 x .80 x 11,000 = $8,184

4. Conclusion

In any variation of experience rating using the claim deductible concept the critical aspect is to get a reasonable balance between the size of refunds and surcharges and the amount of assessment still required for true insurance. Testing of various alternatives reveals the proportion of total claims that is expected to be subject to the deductible and, of course, then the remainder which must be covered by insurance premiums or assessments.

There is no right or wrong formula. However experience to date indicates that small firms tend to be more concerned about significant surcharges than excited about meaningful refunds.

It must be remembered that depending on the industry rategroup, the smallest firms :ay under 15 employees) are often expected to have only one claim every several years. Accordingly if refunds and surcharges are intended to balance each other in

total then the average surcharge must be several times the average refund for these firms. If this theory is followed closely it will severely limit potential refunds since large surcharges will be politically unpalatable. Accordingly, we have tended to aim at maximum potential refunds in the 15-20% range for the smallest firms and then arbitrarily limited surcharges to approximately twice the maximum refund.

Thus among the variations on the deductible concept that were developed in this appendix it seems most appropriate to:

- vary the deductible by size of firm starting at about $500 for the smallest companies.
- provide some very modest experience rating on the claims costs in excess of the deductible not only to increase the potential for refunds but also to recognize the severity of claims.

APPENDIX C

1. List of all Rategroups showing 1986 assesment rates.

Rategroup	Description	1986 Assessment Rate
1	Woods Operations	13.27
8	Sawmills	6.11
12	Veneer Mills	3.72
23	Pulp and Paper Mills	2.77
37	Furniture	4.10
45	Sash and Door Factories	5.86
54	Wooden Toys, Novelties	3.23
62	Brooms, Brushes	3.94
69	Gold Mining	8.99
76	Nickel Mining	10.33
84	Uranium Mining	7.86
91	Mixed Mining	4.70
95	Iron Mining	4.47
98	Diamond Drilling	11.53
106	Mining Contractors	28.05
109	Prospecting, Development Work	2.92
121	Quarrying	5.01
129	Cement	2.16
137	Brick, Blocks, Tile	6.77
153	Glass, Pottery	2.86
162	Steel Mills	4.28
170	Abrasives	4.76
180	Foundries	7.07
204	Steel Fabrication	6.81
212	Ship Building	7.24
246	Metal Articles	3.59
255	Wire Goods	3.23
264	Light Manufacturing	0.73
272	Plastic Articles	3.31
280	Batteries	2.40
288	Electric Apparatus	2.80
298	Agricultural Implements	4.54

306	Automobiles	4.20
310	Aeroplanes	1.57
315	Service Stations	2.66
331	Car Shops	7.77
339	Selling, Renting, Servicing	2.43
349	Petroleum	0.96
357	Gas Wells	1.26
365	Well Boring and Drilling	3.80
373	Paint and Varnish	2.49
381	Soap	0.83
405	Chemicals	1.27
413	Explosives	1.16
423	Milling	3.45
431	Grain Elevators	3.95
440	Abattoirs	5.65
448	Dairies	3.43
456	Bakeries	3.25
464	Canneries	2.63
473	Sugar Refinerie	2.57
482	Condiments	1.44
491	Breweries	2.00
499	Soda Water	3.94
508	Wine	1.21
516	Tobacco	0.80
526	Tanneries	3.95
535	Leather Product	1.96
544	Rubber Products	3.93
555	Textiles	4.09
591	Knitting and Spinning	1.84
601	Needletrades	1.88
610	Laundries	2.43
619	Publishing	0.43
628	Lithographing	1.35
637	Cardboard Boxes	3.05
646	Advertising Displays	4.39
656	Trucking	5.63
665	Warehousing	2.54
674	Flying Operations	2.87
683	Stevedoring	25.83
692	Builders' Supplies	4.63

709	Taxi Cabs	2.90
717	Scrap Metals	9.36
726	Second Materials - Not Metal	8.69
736	Road Builders	6.91
744	Sidewalks	8.22
753	Sewers	11.21
761	Tunnelling	9.99
772	Power/Telecom/Line Constr	3.42
789	Municipal Operations	2.71
799	School Boards	0.37
809	Steel Erection	20.48
827	Heavy Installation	9.23
836	Breakwaters, Canals	11.51
844	Fishing	2.69
854	General Contruction	8.70
859	Wrecking	25.71
864	Building Sub Trades	4.54
873	Painting and Decorating	9.55
876	Landscaping	5.83
882	Hospitals	1.43
890	Hotels, Motels	2.59
898	Restaurants	1.67
907	Janitorial Service	2.47
916	Wholesale	1.29
924	Theatres	0.69
931	Retail - Food	1.65
934	Retail - Other Than Food	0.81
940	Accountants, Architects, etc.	0.35
941	Arenas, Clubs, etc.	0.62
942	Security Services	1.51
943	Specialized Farming	4.19
945	Advertising Distribution	1.42
947	Cemetery Companies	3.14
951	Maintenance of Townsites	0.72
953	General Farming	6.29
955	Tree Surgery	18.04
957	Total of 001 - 955	2.61

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08/15/86          1985 PRELIMINARY RATE ACCOUNTS                      REPORT 1
11.39.44      1975 TO 1985 PRELIMINARY RATEGROUP RESULTS              PAGE2143
--------               DEC    1985  DATA FOR 1985                     --------
RRO41AC1 ------------------------------------------------------------ RRO41AR1
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ACCOUNT DESCRIPTION	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
(1) ASSESSMENT RATE	0.60	0.75	0.80	0.70	0.65	0.60	0.70	0.80	0.90	1.03	1.11
(2) PAYROLL	314.568	361.063	387.952	409.967	460.314	498.373	597.664	695.917	696.013	798.271	924.429
REVENUE											
(3) ASSESSMENT REVENUE	2.068	2.933	3.194	2.803	2.900	3.087	3.988	5.948	5.857	8.300	10.341
(4) INVESTMENT INCOME	0.299	0.399	0.479	0.677	0.719	0.800	0.914	0.965	0.990	1.097	1.257
(5) INCOME	2.367	3.332	3.673	3.480	3.619	3.886	4.902	6.913	6.847	9.397	11.599
BENEFIT PAYMENTS											
(6) COMPENSATION AWARDS	0.818	0.968	1.051	1.084	1.306	1.535	1.956	2.427	3.027	3.210	3.600
(7) MEDICAL AID AWARDS	0.317	0.359	0.393	0.397	0.448	0.449	0.682	0.719	0.761	0.983	1.116
(8) PENSION PAYMENTS	0.360	0.407	0.604	0.546	0.623	0.807	0.897	1.062	1.430	1.772	2.020
(9) LUMP SUM RE AMEND.	0.000	0.000	0.000	0.134	0.011	0.055	0.079	0.047	0.000	0.000	0.000
(10) REHABILITATION	0.006	0.025	0.049	0.019	0.024	0.028	0.044	0.059	0.090	0.078	0.143
(11) LESS: THIRD PARTY RECOV.	0.000	-0.000	-0.000	-0.000	0.006	0.005	0.012	0.011	0.014	0.013	0.017
(12) BENEFIT PAYMENTS	1.501	1.759	2.098	2.179	2.406	2.868	3.647	4.303	5.294	6.030	6.861
OTHER COSTS											
(13) WCBO ADMINISTRATION	0.170	0.191	0.270	0.301	0.357	0.451	0.567	0.661	0.743	0.829	1.031
(14) SAFETY ASSOCIATION	0.042	0.047	0.060	0.069	0.080	0.096	0.130	0.160	0.166	0.189	0.219
(15) LEVY RE SI & RS	0.131	0.168	0.268	0.256	0.284	0.479	0.721	1.375	1.132	1.356	1.327
(16) LESS : SIEF RELIEF	0.095	0.146	0.217	0.191	0.223	0.350	0.483	0.934	0.846	1.258	1.162
(17) LESS : RS RELIEF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(18) OTHER COSTS	0.248	0.259	0.381	0.435	0.498	0.676	0.935	1.262	1.195	1.116	1.414
ASSETS											
(19) SPECIAL YEAREND TRANSFER	0.000	0.000	0.000	0.000	0.000	-0.007	0.000	0.000	0.000	0.000	0.000
(20) NET INCOME:(5)-(12)-(18)	0.618	1.314	1.194	0.866	0.715	0.343	0.320	1.349	0.358	2.251	3.323
(21) ASSETS AT JAN 1ST	4.396	5.015	6.328	7.522	8.388	9.103	9.439	9.760	11.108	11.467	13.717
(22) ASSETS AT DEC 31ST	5.015	6.328	7.522	8.388	9.103	9.439	9.760	11.108	11.467	13.717	17.040
LIABILITIES											
(23) REGULAR INCR IN LIAB	*********	0.928	0.689	0.094	0.345	0.649	1.009	1.175	1.539	6.190	8.842
(24) SPECIAL INCR IN LIAB	*********	0.000	0.000	1.320	0.981	0.000	1.867	3.917	3.825	1.722	13.584
(25) TOTAL INCR IN LIAB	*********	0.928	0.689	1.414	1.326	0.649	2.876	5.091	5.364	7.912	22.426
(26) LIABILITY AS AT JAN 1ST	*********	6.135	7.063	7.752	9.166	10.492	11.141	14.017	19.109	24.472	32.385
(27) LIABILITY AS AT DEC 31ST	6.135	7.063	7.752	9.166	10.492	11.141	14.017	19.109	24.472	32.385	54.810
UNFUNDED LIABILITIES											
(28) UNF LIAB INCR:(25-20-19)	*********	-0.386	-0.505	0.548	0.611	0.313	2.556	3.743	5.005	5.661	19.103
(29) UNF LIAB AT JAN 1ST	*********	1.120	0.735	0.229	0.777	1.389	1.702	4.258	8.001	13,006	18.667
(30) UNF LIAB AT DEC 31ST	1.120	0.735	0.229	0.777	1.389	1.702	4.258	8.001	13.006	18.667	37.770

---- NONE OF THE RESULTS HAS BEEN AUDITED AND E.O. & E.

RATEGROUP # 43 IS 405 :CHEMICALS THE 1986 RATE IS 1.27

3. Sample Assessment Rate Report - 405 - Chemicals

RATE NUMBER 405-CHEMICALS

		1986
1.	INCURRED INJURIES	1.143
2.	ADMINISTRATION	0.108
3.	SAFETY ASSOCIATION	0.025
4.	RATE STABILIZATION CHARGE	0.015
5.	REHABILITATION	0.021
6.	BASIC RATE (1+2+3+4+5)	1.312
7.	UNFUNDED LIABILITY SURCHARGE	0.217
8.	RATE STABILIZATION ASSISTANCE	0.000
9.	SECOND INJURY ADJUSTMENT	0.014
10.	SUB TOTAL(6+7+8+9)	1.544
11.	INTEREST	0.050
12.	INDICATED RATE (10+11)	1.594
13.	LIMITATION ON CHANGE IN RATE	-0.317
14.	SUB TOTAL (12+13)	1.276
15.	ROUNDING (SEE NOTE BELOW)	-0.006
16.	FINAL RATE	1.270

NOTE: ROUNDING IS TO THE NEAREST CENT, SUBJECT TO THE MAXIMUM ALLOWABLE RATE INCREASE.